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10/542,354

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Mitsuru Naito

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EXAMINER

KOTTER, KIP T

ART UNIT

PAPER NUMBER

3617

MAIL DATE

DELIVERY MODE

06/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/542,354 | Applicant(s) NAITO ET AL. | |
| | Examiner KIP T. KOTTER | Art Unit 3617 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,11-14,17 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,11,17 and 22 is/are allowed.
- 6) ☒ Claim(s) 1-3,12-14 and 23-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 12-14 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rivin (U.S. Patent No. 5891278; newly cited) in view of Glinz et al. (U.S. Patent No. 6463976 B1; previously cited), Akiyoshi et al. (U.S. Patent No. 6648421 B1; previously cited) and Osada et al. (U.S. Patent No. 4216810; previously cited).

Regarding claims 1, 3, 12 and 14, Rivin discloses a tire/wheel assembly comprising: a wheel having a rim **12**; a pneumatic tire **11** mounted on the rim of the wheel, the pneumatic tire

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having a cavity as shown in Fig. 3; and a noise reduction interior member **13** having an annular body with opposing leg portions disposed in the cavity of the pneumatic tire that is not adapted to support the wheel when the tire is punctured.

Rivin, however, fails to expressly disclose the noise reduction interior member having left and right elastic rings fitted to the rim and attached to the annular body, the annular body being formed by joining a plurality of annular body pieces into which the annular body is divided in a circumferential direction thereof, the annular body having a cross-sectional shape that varies in the tire circumferential direction such that an annular cavity portion surrounded by the noise reduction interior member and the pneumatic tire has a cross-section area that varies periodically in a circumferential direction of the tire, and opposing leg portions that alternately protrude outwardly and inwardly of the respective annular body pieces.

Glinz et al. teaches a tire/wheel assembly wherein the noise reduction interior member has left and right elastic rings **25**, **26** fitted to the rim and an annular body **22** attached between the elastic rings to facilitate mounting of the tire with a noise reduction interior member on the rim as described in column 2, lines 15-67. Glinz et al. also teaches the annular body having opposing leg portions **20**, **21**, the opposing leg portions alternately protrude outwardly and inwardly of the respective annular body piece at **23**, **24** as shown in Fig. 3. Specifically, leg portion **20** includes a part **24** that has a profile that protrudes both inwardly and outwardly of the annular body piece in an alternate manner to facilitate the clamping of the leg portion to the elastic ring **25** as described in lines 41-48 of column 10. Likewise, leg portion **21** includes a part **23** that has a profile that protrudes both inwardly and outwardly of the annular body piece in an

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alternate manner to facilitate the clamping of the leg portion to the elastic ring **26** as described in lines 41-48 of column 10.

It would have been obvious to one having ordinary skill in the art to have modified the noise reduction interior member of Rivin by attaching the annular body between left and right elastic rings that are fitted on the rim, such as taught by Glinz et al., to obtain the predictable result of facilitating the mounting of the tire and noise reduction member on the rim. Further, it would have been obvious to one having ordinary skill in the art to have modified the noise reduction interior member of Rivin by having its opposing leg portions alternately protrude outwardly and inwardly of the respective annular body piece, such as taught by Glinz et al., to provide predictable results for facilitating the clamping of the leg portions to the elastic rings.

Osada et al. teaches a tire/wheel assembly wherein the annular body **Fp** is comprised of a plurality of annular body pieces **14** in a circumferential direction as shown in Fig. 2 to facilitate assembly as described in column 4, lines 32-38.

It would have been obvious to a person having ordinary skill in the art to have substituted an annular body made of a plurality of annular body pieces, such as taught by Osada et al., for the annular body of Rivin to obtain the predictable result of facilitating its assembly.

Akiyoshi et al. teaches a tire/wheel assembly wherein the annular body **30** has a cross-sectional shape that varies in the tire circumferential direction such that the annular cavity portion surrounded by the noise reduction interior member and the pneumatic tire has a cross-section area that varies periodically in a circumferential direction of the tire as shown in Fig. 6 and described in column 4, lines 54-65.

It would have been obvious to a person having ordinary skill in the art to have modified the annular band of Rivin so that it has a cross-sectional shape that varies in the tire circumferential direction such that the annular cavity portion has a cross-section area that varies periodically in a circumferential direction of the tire, such as taught by Akiyoshi et al., to reduce noise caused by columnar resonance.

Regarding claims 2 and 13, Akiyoshi et al. further teaches a tire/wheel assembly wherein the cross-sectional area of the annular cavity portion varies such that the maximum cross-sectional area is 2% greater or more than a minimum cross-sectional area thereof as described in column 6, lines 13-26.

From this teaching, it would have been obvious to a person having ordinary skill in the art to have modified Rivin, as modified by Glinz et al., Osada et al. and Akiyoshi et al., so that the cross-sectional area of the annular cavity portion varies such that the maximum cross-sectional area is 2% greater or more than a minimum cross-sectional area thereof to obtain a larger noise reducing effect.

Regarding claims 23-26, Osada et al. further teaches a tire/wheel assembly wherein the annular body **Fp** is comprised of four equally sectioned regions **14** in a circumferential direction wherein each equally sectioned region comprises a single annular body piece as shown in Fig. 2 to facilitate assembly as described in column 4, lines 32-38.

It would have been obvious to a person having ordinary skill in the art to have substituted an annular body made of four equally sectioned regions such as taught by Osada et al., for the

annular body of Rivin, as modified by Glinz et al., Osada et al. and Akiyoshi et al., to obtain the predictable benefit of facilitating its assembly.

Akiyoshi et al. further teaches a tire/wheel assembly wherein the cross-sectional area of the annular cavity portion is a maximum at either two or four sectioned regions and the cross-sectional area of the annular cavity portion is a minimum at either two or four sectioned regions that include a bulkhead **15**, **15'**, **15''** and wherein the minimum and maximum regions are alternately arranged to reduce noise caused by columnar resonance as described in column 6, lines 3-26 and best shown Figs. 3, 8 and 9A.

It would have been obvious to a person having ordinary skill in the art to have modified the annular body of Rivin, as modified by Glinz et al., Osada et al. and Akiyoshi et al., so that annular cavity portion has two regions with a maximum cross-sectional area and two regions with a minimum cross-sectional area, wherein the maximum cross-sectional area regions and minimum cross-sectional area regions are alternately arranged, such as taught by Akiyoshi et al., to obtain the predictable result of reduced noise caused by columnar resonance.

Allowable Subject Matter

4. Claims 6, 11, 17 and 22 are allowed.

Response to Arguments

5. Applicants' arguments filed May 22, 2008 have been fully considered but they are not persuasive.

In response to Applicants' argument that the configuration of annular body pieces recited in independent claims 1 and 12 is not disclosed or suggested by the cited references, as noted above in paragraph 3, Glinz et al. teaches an annular body having opposing leg portions **20, 21**, the opposing leg portions alternately protrude outwardly and inwardly of the respective annular body piece at **23, 24** as shown in Fig. 3. Specifically, leg portion **20** includes a part **24** that has a profile that protrudes both inwardly and outwardly of the annular body piece in an alternate manner to facilitate the clamping of the leg portion to the elastic ring **25** as described in lines 41-48 of column 10. Likewise, leg portion **21** includes a part **23** that has a profile that protrudes both inwardly and outwardly of the annular body piece in an alternate manner to facilitate the clamping of the leg portion to the elastic ring **26** as described in lines 41-48 of column 10.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIP T. KOTTER whose telephone number is (571)272-7953. The examiner can normally be reached on 9:00-4:00pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on (571)272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KIP T KOTTER/
Examiner, Art Unit 3617

/Russell D. Stormer/
Primary Examiner, Art Unit 3617